[redacted]

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V3J 5Z3

First Class Première classe

CHRISTMAS SEALS FIGHT T.B. ET RD UTILISEZ TIMBRES DE

"the packet"

The newsletter of V.A.D.C.G.

The Vancouver Amateur Digital Communications Group

the packet

Issue 3
November 1980

Vancouver Amateur Digital Communications Group
818 Rondeau Street, Coquitlam, British Columbia, Canada V3J5Z3

GENERAL MEETING

A general meeting of the VADCG will be held Tuesday, December 9, 1980, at 7:30 PM. The place will be St. Peter's hall, at 336 Agnes St. (near Royal Ave. and 6th St.) in New Westminster.

Anyone, member or non-member may attend.

The main topics of the meeting will be:

1. What help do you need from the group?
2. What help can you give to the group?
3. Do you favour a more formal organization than at present? This could involve regular meetings, elected officers, etc.

LOCAL VHF CONTACTS

145.65 MHz is now being monitored and used for contact and packet radio discussion and information exchange.

STATION NODE FOR WEST COAST AREA

The VADCG has purchased an Altair 8800 mainframe and has ordered a Z80 CPU card and a 32K Expandoram memory card. With the addition of an S100 I/O Station Node Controller board, of our own design, the above will become the computer part of a permanent station node. It will then be possible to have the station node running continuously.

The system will have the ability to down-line load a program from a development system. The development system could even be remote from the station node.

TERMINAL CONTROLLER SOFTWARE

Last issue we published the first in a series on terminal controller software. The second installment has been delayed due to Doug Lockhart's absence. Look for it next issue.

SERIAL TTL DATA

If your terminal has a TTL-level serial output port, you can use a simple connection to the terminal node controller board.

Use a DIP header with signal from the terminal on pin 9 (TxD) and signal to the terminal on pin 10 (RxD). Plug this header into J3.
Omit U4 and U5.
Connect pin 2 to pin 3 on the U4 socket
" " 1 to " 3 " " U5 "
Since J1 is not used, the DB-25 connector may be omitted.
This hookup should work for relatively short cables between the terminal and the controller.

Also jumper U5 and U4 as below :

J3 pin	U5	U4	Function
12	11-13		DTR
13	10-8		RTS
14		8-10	DCD
15		13-11	DSR
16		4-6	CTS

Note that the labels on the 8250 do not describe the function of these pins as used in this application.

RS-232 INTERFACE CONNECTIONS

There are two modes of connection for RS-232 interfaces:
DATA TERMINAL EQUIPMENT (DTE) and
DATA COMMUNICATIONS EQUIPMENT (DCE).
Since the signals can pass in only one direction on individual lines, it can be seen that only pairs of (DTE) and (DCE) devices may be connected by a multi-conductor cable such that inputs mate with outputs.

The TERMINAL NODE CONTROLLER circuit card has two RS-232 interfaces on type DB-25S connectors. The S.D.L.C. interface, J2, is wired as (DTE) to mate with a radio modem wired as (DCE). The asynchronous serial interface,J1, may be wired as (DCE) or (DTE) depending on the strap option at J3. Simple "rail" interconnection of the patch plug J3 will implement the (DCE) mode to interface with data devices such as CRT"s, which are generally wired as (DTE). If the device is wired as (DCE), the interface must be wired as (DTE) by exchanging complementary signals on J3.

The voltage levels on the interface swing between positive 12 volts and minus 12 volts to represent a logic true or logic false. A logic ground is considered to be logic false. It is reccommended that all unused inputs be connected to full logic voltages.

PIN	MNEMONIC	NAME and DESCRIPTION
1	AA	FRAME GROUND or EARTH This terminal is connected to the green third wire of the power cord and is common with signal ground. This ground should be the same as the data device ground.
2	BA IN	SEND DATA The radio modem receives data from the terminal controller on this terminal. If a synchronous radio modem is used, the data transition is made on the positive transition of the SERIAL CLOCK TRANSMITTER on pin 15 and is sampled on the negative transition of the clock. A positive voltage is used to represent binary zero and a negative voltage represents a binary one.
3	BB OUT	RECEIVE DATA The polarities on this lead agree with those on the send data lead. If a synchronous radio modem is used, then data should be sampled on the negative transition of SERIAL CLOCK RECEIVER on pin 17.
4	CA IN	REQUEST TO SEND When the controller is ready to transmit data, a positive voltage is applied to this lead; otherwise the voltage should be negative. After applying the positive voltage, the controller should wait for a positive voltage on CLEAR TO SEND on pin 5.
5	CB OUT	CLEAR TO SEND The voltage on this lead is negative when REQUEST TO SEND is negative and positive after a delay when REQUEST TO SEND goes positive. The delay is provide to allow time for turn-on of the transmitter and synchronization of the distant receiver.

Continued-

6	CC OUT	DATA SET READY The voltage on this lead is positive to indicate when the MODEM is available and ready for use.
7	AB	SIGNAL GROUND This lead is the reference point for all voltages. It is common with frame ground.
8	CF OUT	CARRIER DETECT The voltage on this lead is positive when radio signals with data are present at the receiver. Note that high energy noise may cause it to be positive. A strap option will pass the squelch status of the radio to produce a positive voltage on this lead when any radio signal is received independant of data.
9		POSITIVE BATTERY +12 volt power
10		NEGATIVE BATTERY -12 volt power
15	DB OUT	TRANSMITTER SERIAL CLOCK A square wave bit clock appears on this lead for internally-timed synchronous radio MODEMS.
17	DD OUT	RECEIVER SERIAL CLOCK This lead provides a square wave timing signal derived from RECEIVE DATA with synchronous radio MODEMS. The controller should sample the received data on the negative transition of this lead.
20	CD IN	DATA TERMINAL READY A positive voltage on this lead indicates when the controller is available and ready to use the radio MODEM.
22	CE OUT	RING INDICATOR This signal refers to a telephone MODEM and is undefined in a radio modem. It can be used to present optional status.
23	CH IN	DATA RATE SELECT This optional signal may be used to select a high or low data rate if the MODEM can operate at dual speeds.

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TERMINAL NODE CONTROLLER PC BOARDS

The second run of printed circuit boards for the terminal node controller is almost gone. A new order has been placed and more boards should be available about the 2nd week in DEcember. These are commercial quality, double-sided, through-hole plated boards. The price will remain $32.00 per board.

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BULLETIN STATION

Negotiations are under way to have the packet radio group involved in bulletin transmissions for national amateur organizations. The plan is to use packet switching, as well as ordinary RTTY , on HF bands.

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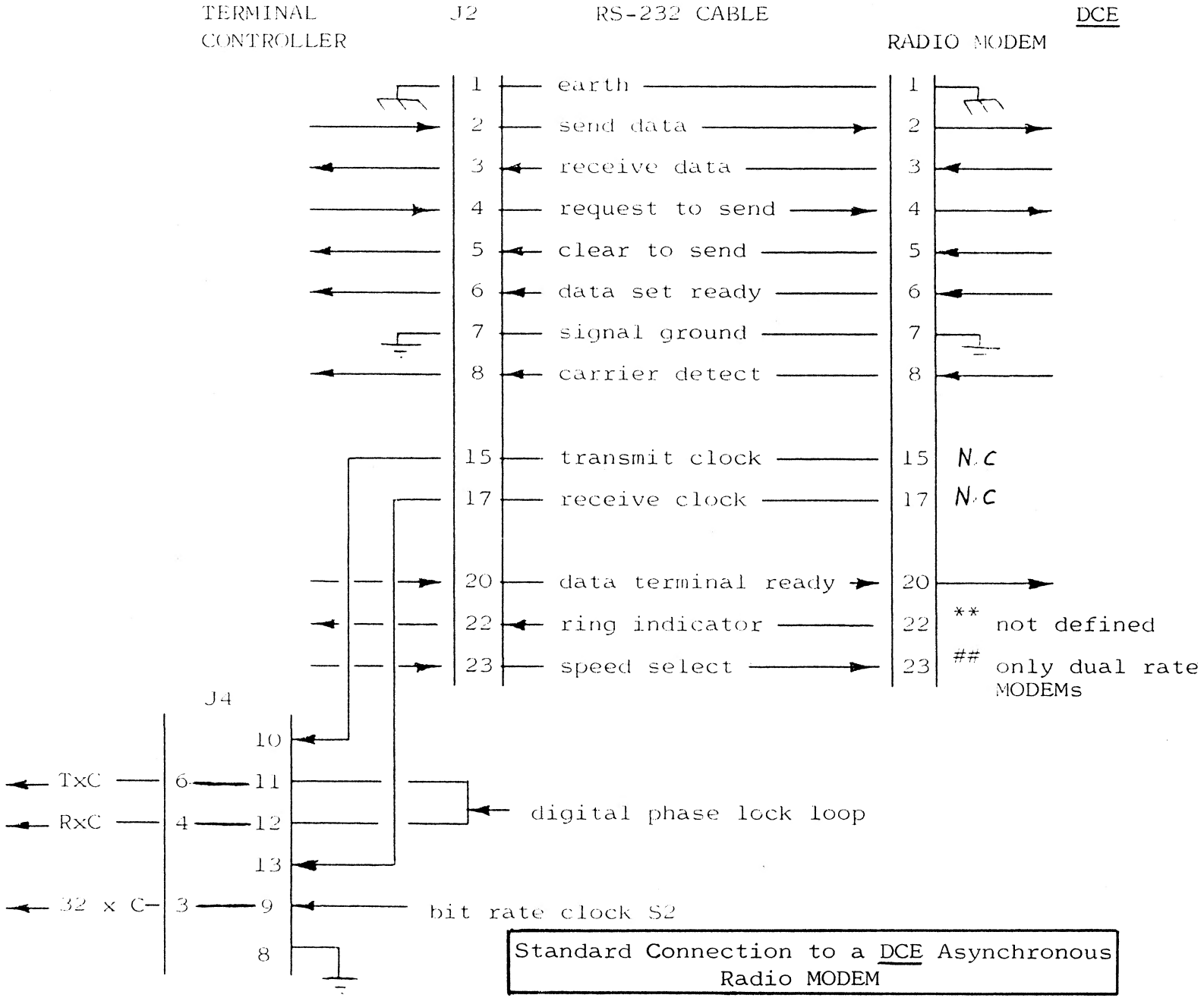
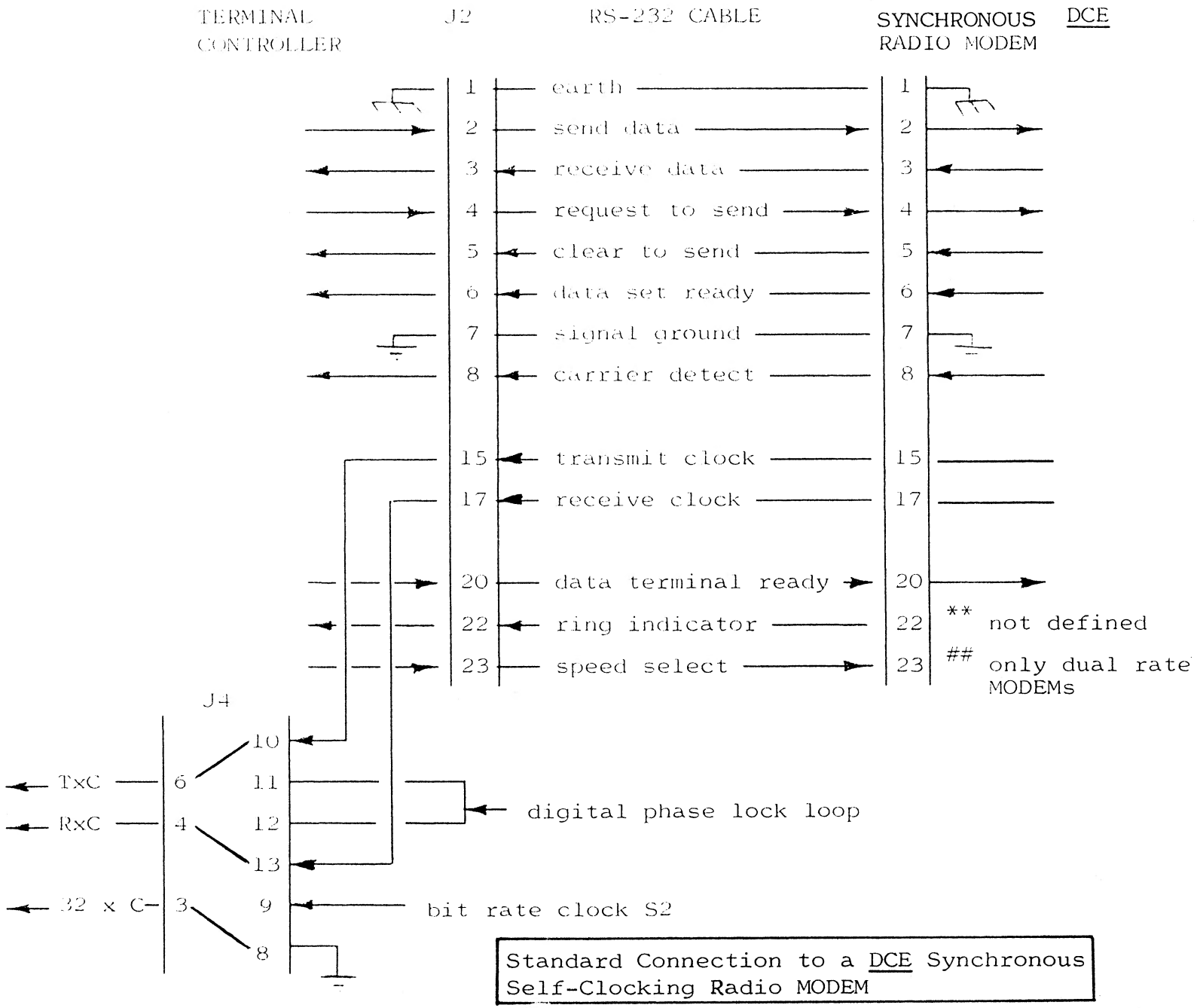
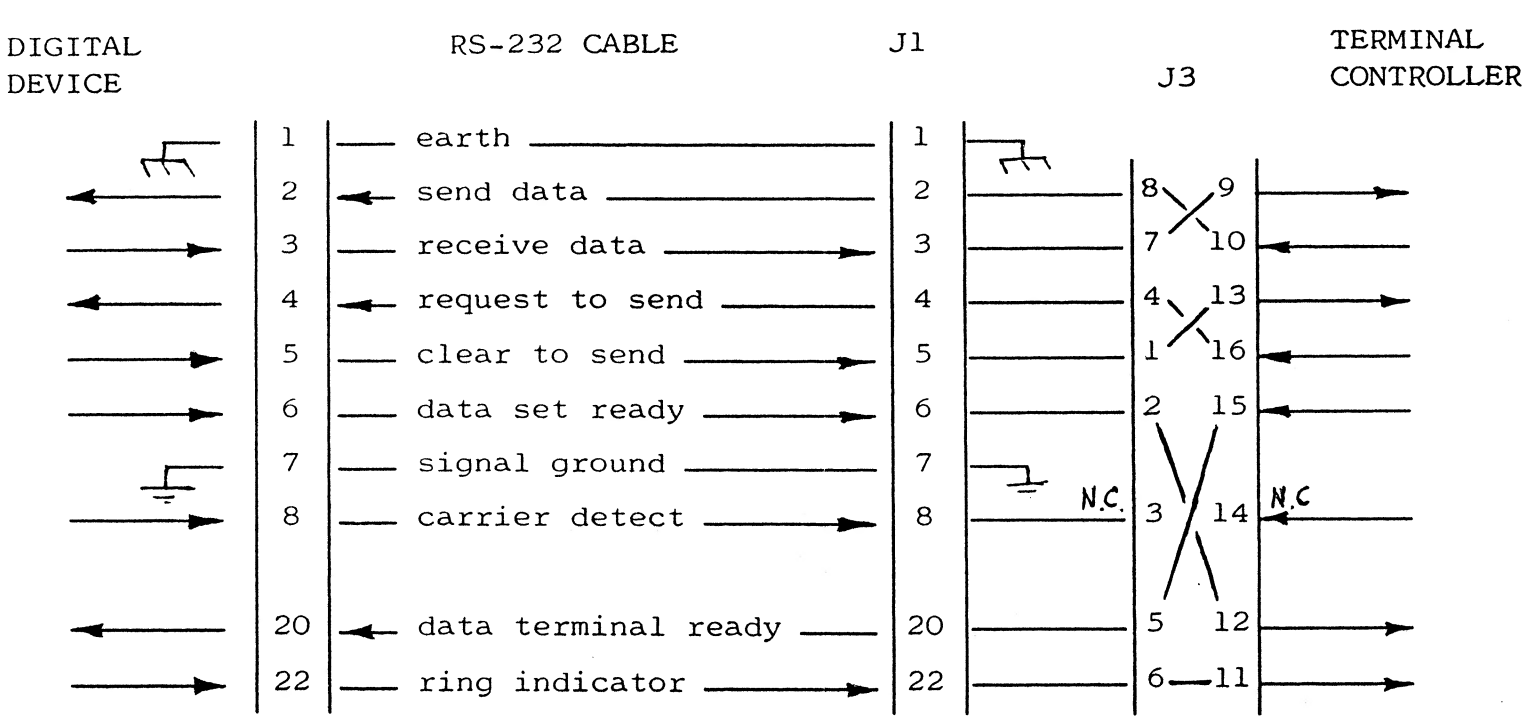


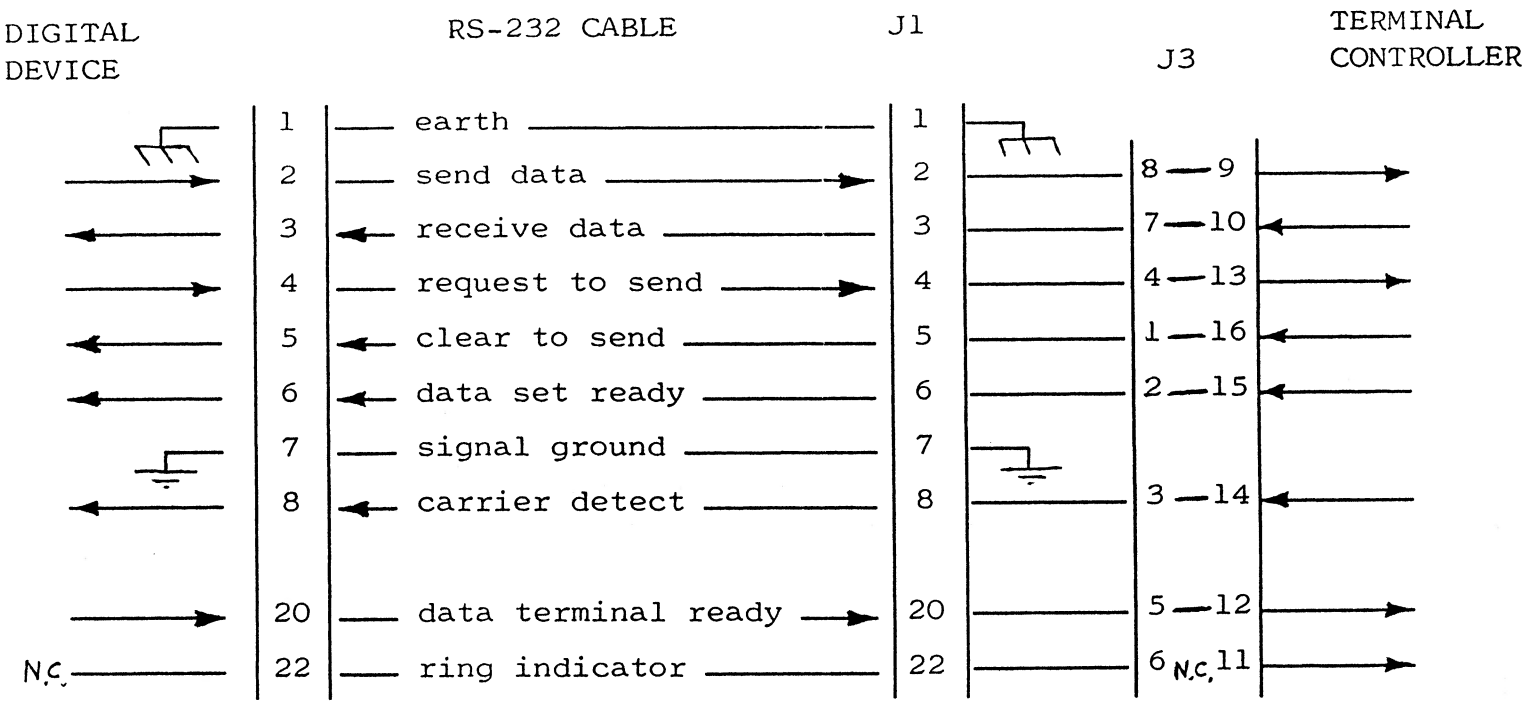
Standard Connection to a DCE Asynchronous Radio MODEM



Standard Connection to a DCE Synchronous Self-Clocking Radio MODEM



Connection to a serial DCE device such as a telephone MODEM or host computer



Standard connection to a serial DTE device such as a CRT, TTY, or printer

VADCG PROGRAM MEMO #1

DATE: December 24, 1980

AFFECTS: LIP programs (Link Interface Programs) distributed before the above date.

SYMPTOMS: Program failure or erratic operation when link buffer becomes full.

CAUSE: Incorrect testing for buffer overflow and incorrect action when buffer overflow occurs in the 8273 receive interrupt handler.

FIX: In the source file for the LIP program locate the following statements in the receive interrupt routine, "RXINT."

```
     INCLB    4
     JNC      STARTRX  ; GOOD, GO AND START RECEIVER
OVERFLOW:
     LXI      H,DISRX  ; POINT TO DISABLE RECEIVER COMMAND
```

Change these statements to the following:

```
     INCLB    4         ; HL <-- LBIP + 4
     JZ       OVERFLOW1 ; OOPS, NO ROOM LEFT
     JC       OVERFLOW1 ; OOPS, NO ROOM LEFT
     JMP      STARTRX  ; GOOD, GO AND START RECEIVER
OVERFLOW:
     PUSH     D        ; SAVE REST OF REGISTERS
     PUSH     B
OVERFLOW1:
     LXI      H,DISRX  ; POINT TO DISABLE RECEIVER COMMAND
```

Doug Lockhart, VE7APU